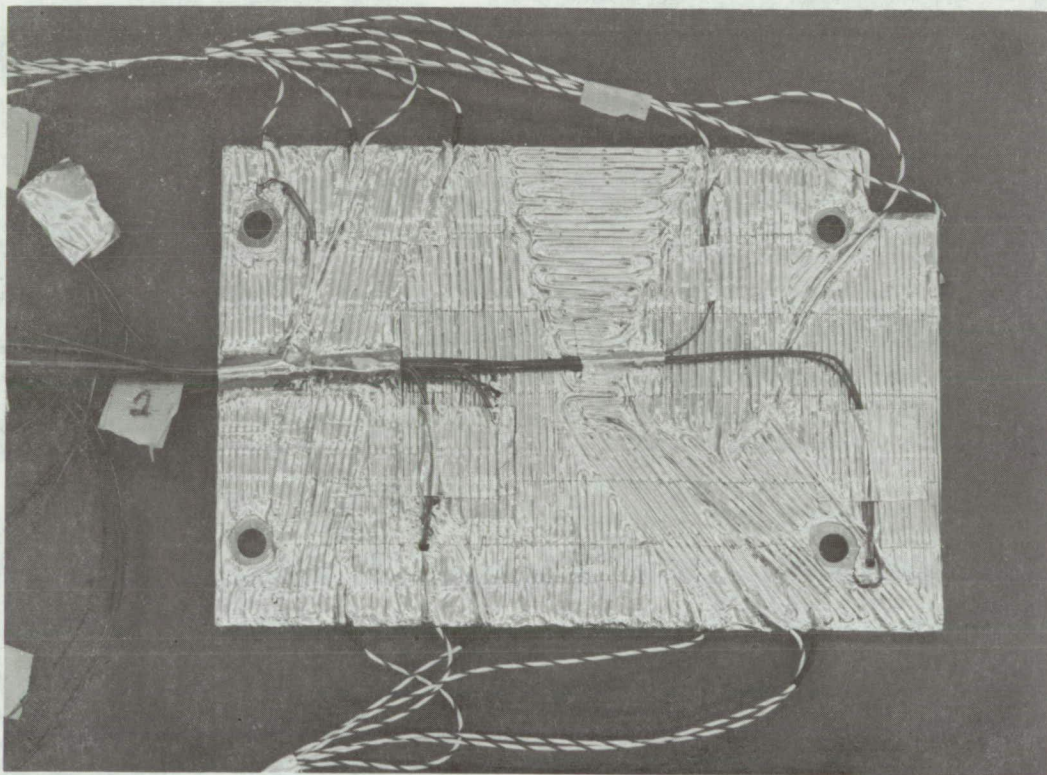


NASA TECH BRIEF



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Heat-Load Simulator for Heat Sink Design



In the design of heat dissipating surfaces (heat sinks) for mounting heat generating electronics equipment, actual loading of the developmental heat sink with equipment design loads is a requirement. To operate complex, sophisticated, and expensive electronic gear merely for the purpose of designing heat dissipative mounts, is a poor approach to the problem from an economic as well as a time scheduling point of view. Because manufacturers rate components as to thermal output, simulated heat loading could be substituted

for actual component loading if close thermal output is assured.

A method has been found that provides a closely controlled thermal output to simulate actual electronic component thermal output in whatever configuration the actual installation will assume. The heat-load simulator is fabricated from 1/4-inch aluminum plate with a contact surface equal in dimensions and configuration to those of the electronic installation. On the opposite side of the plate thermocouple wire insulated

(continued overleaf)

with glass fibers is arranged in a series of patterns and in sufficient depth to reproduce the thermal inputs to the mount that the final installation components would present. The above figure is an example of such a heat-load simulator designed in accordance with the thermal map shown below.

Notes:

1. This innovation would make an excellent laboratory tool wherever cost and scheduling prohibits the use of actual electronic equipment.

2. Documentation for the innovation is available from:
Clearinghouse for Federal Scientific
and Technical Information
Springfield, Virginia 22151
Price \$3.00
Reference: B68-10510

Patent status:

No patent action is contemplated by NASA.
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